SeizSmart

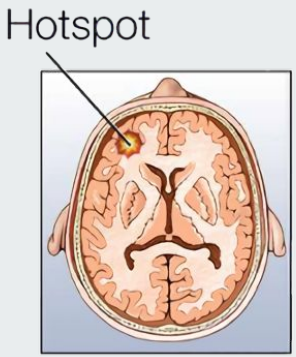
A mobile application for detecting, tracking, and reporting seizures in real time.

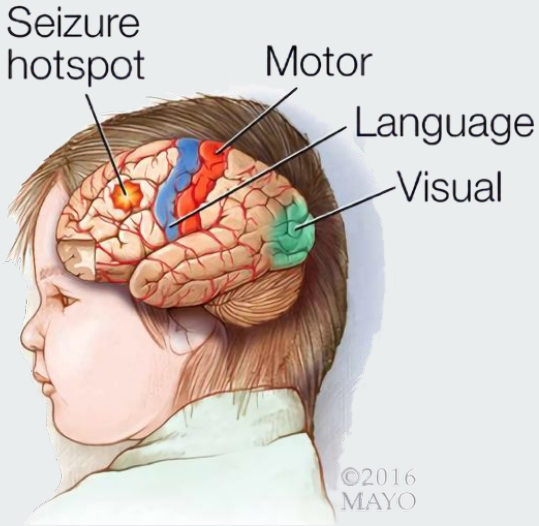
Prototype Demo Presentation

CS 411 Fall 2019

Team Silver

Abel Weldergay, Kevin Sokol
Alpha Din Gabisi, Jeffrey McAteer
Danielle Luckraft, Peter Scheible
Dakotah Atkinson, Jody Hamberry





[Live Demo]

What have we accomplished?

Watch

- Notifying emergency contacts directly from the smartwatch
- Internal SQLite Database
- Perform detection using biometric readings

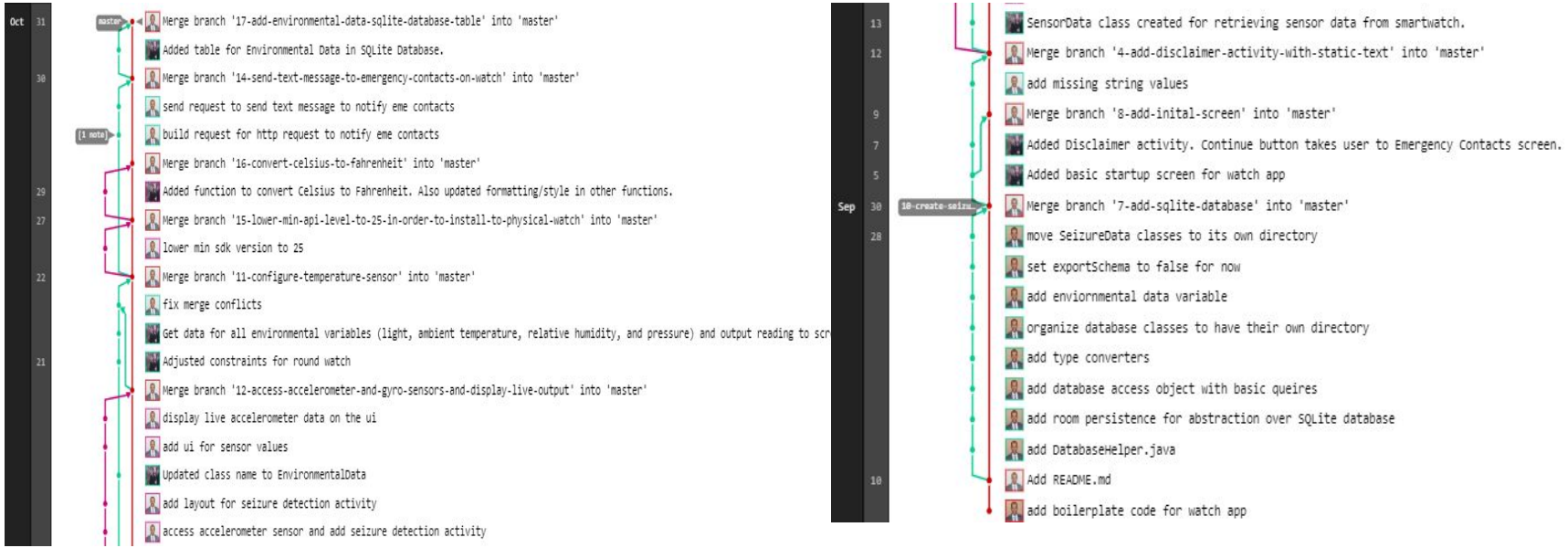
Phone

- Internal SQLite Database
- Adding emergency contacts
- Stats Visualization

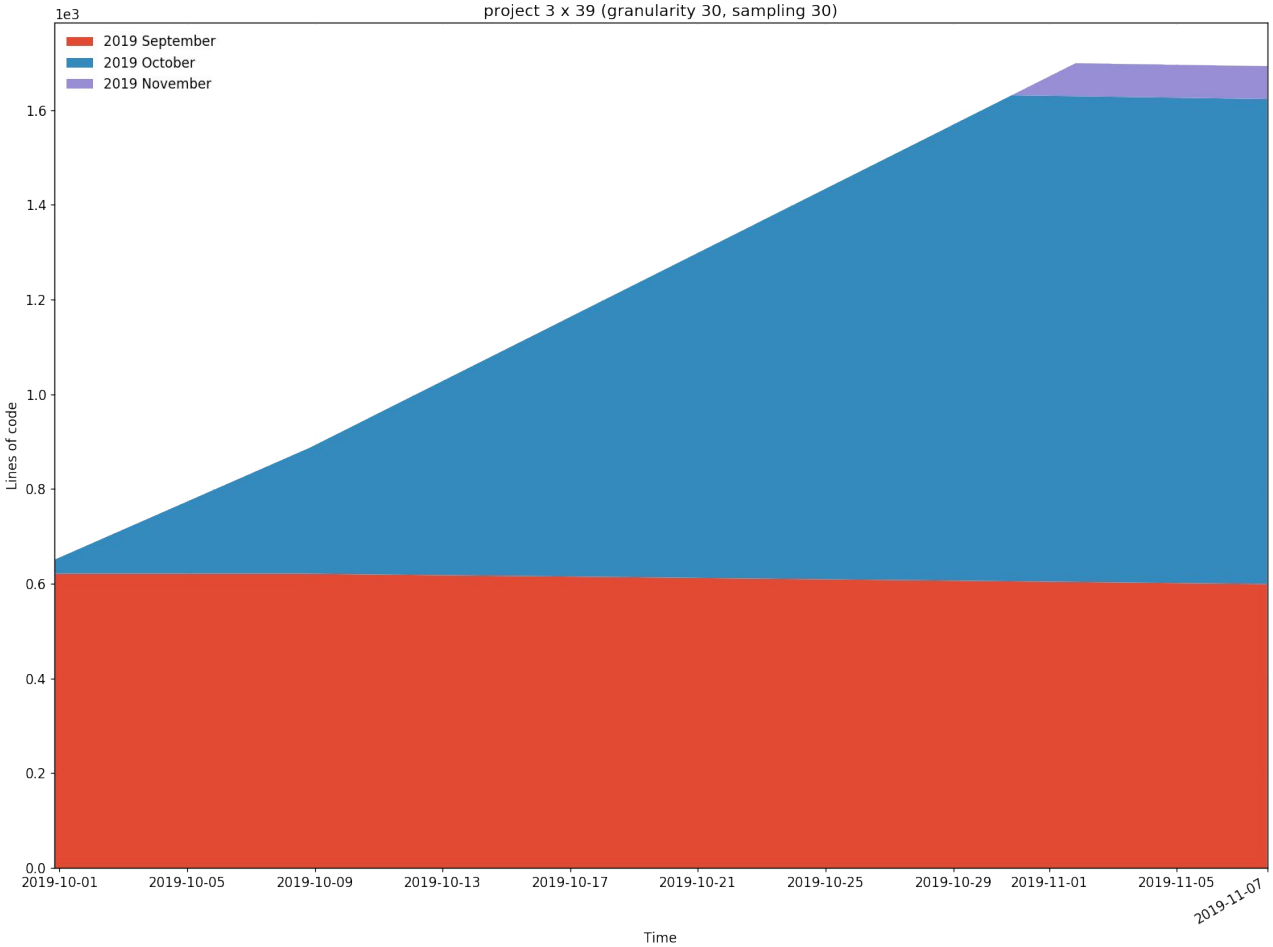
Server

- All API Endpoints Functional
- NN Training Operational
- SMS Gateway Operational
- Public Unit Test Reports
- Public Javadoc for Core library

SeizSmart-Watch Git Log

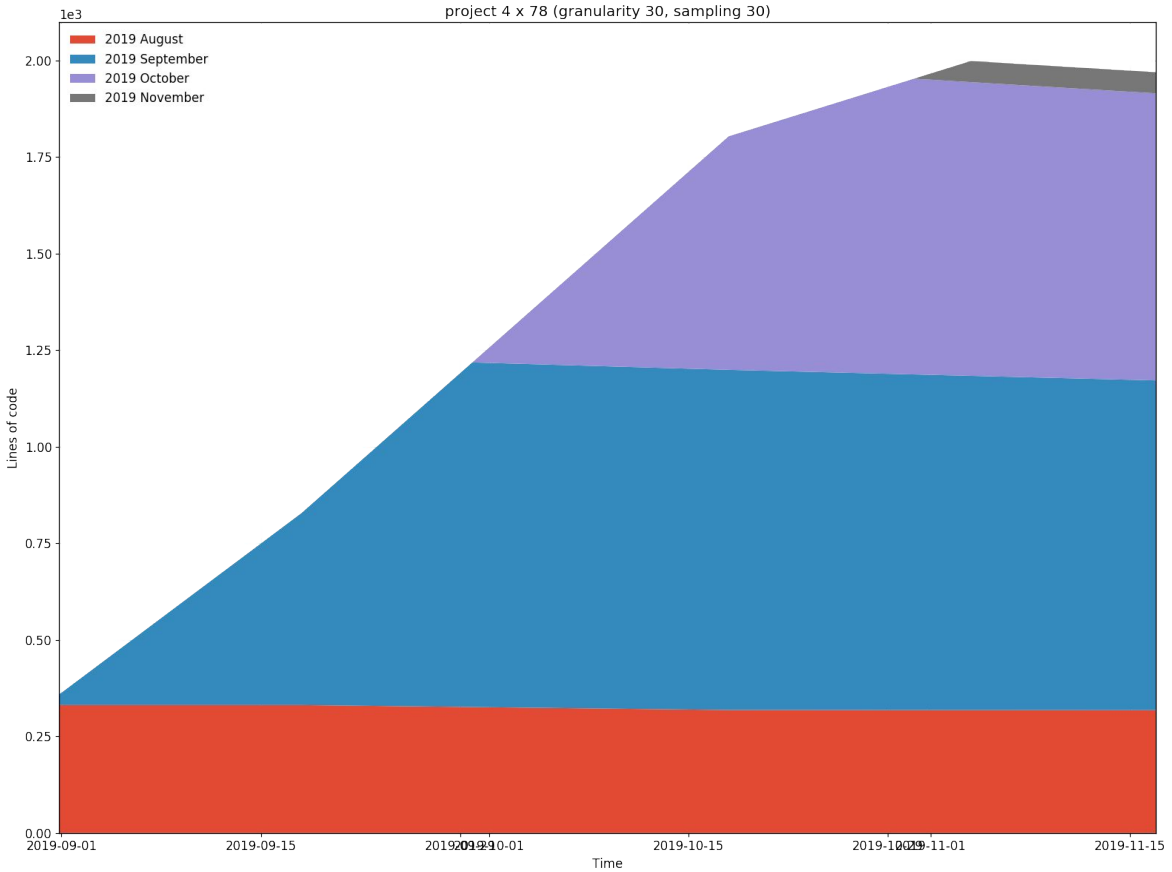


SeizSmart-Watch Code Burndown

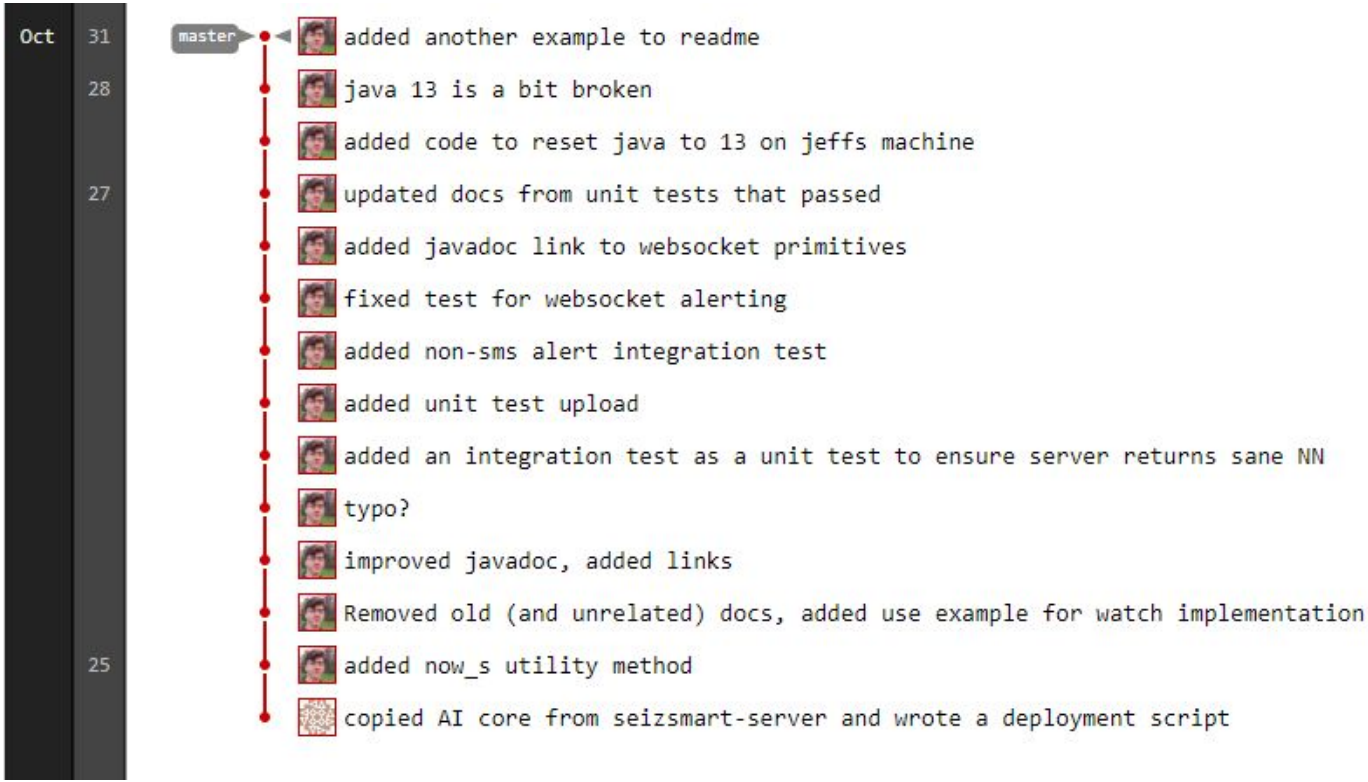


SeizSmart-Phone Git Log

SeizSmart-Phone Code Burndown



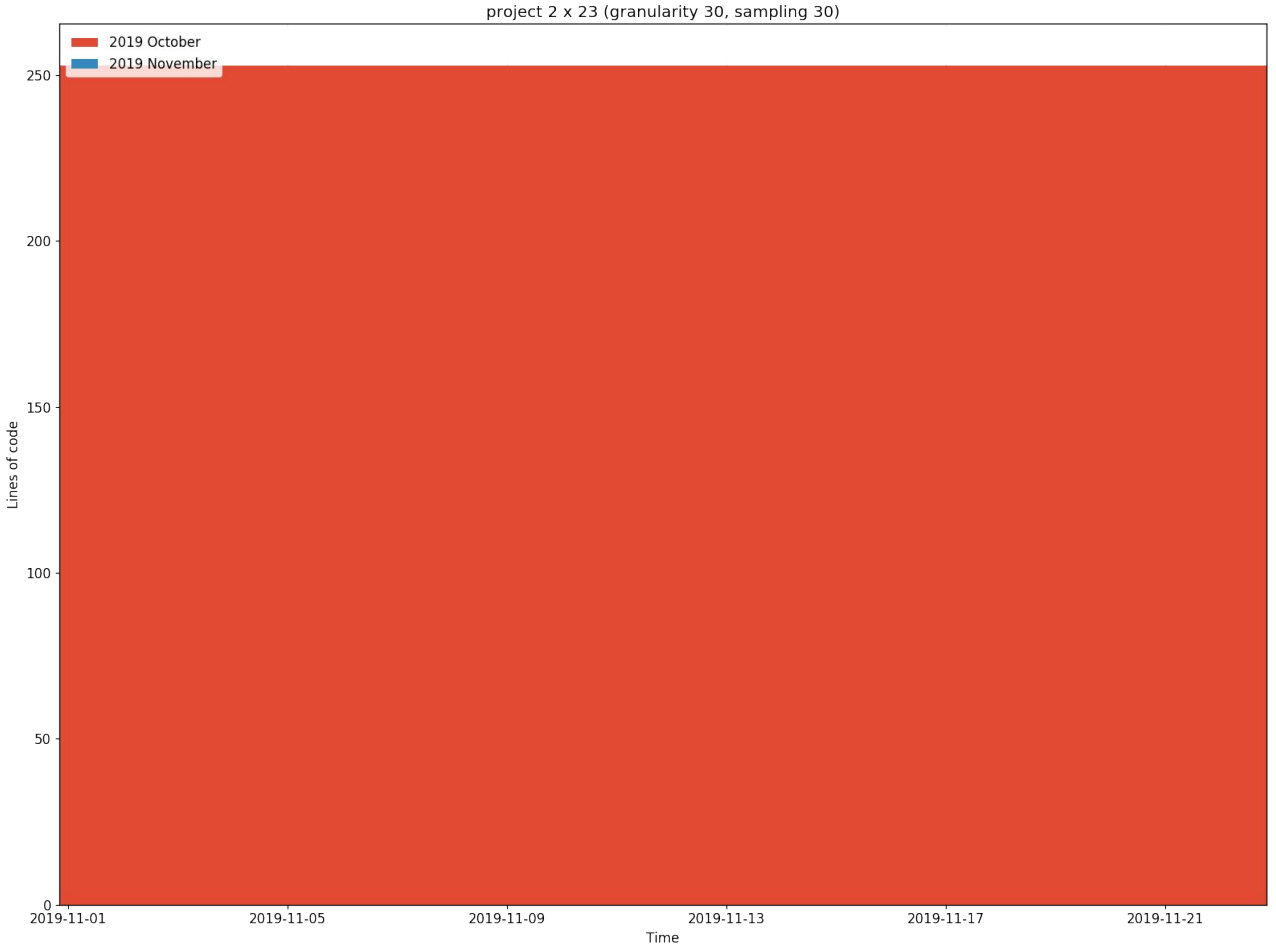
SeizSmart-Core Git Log



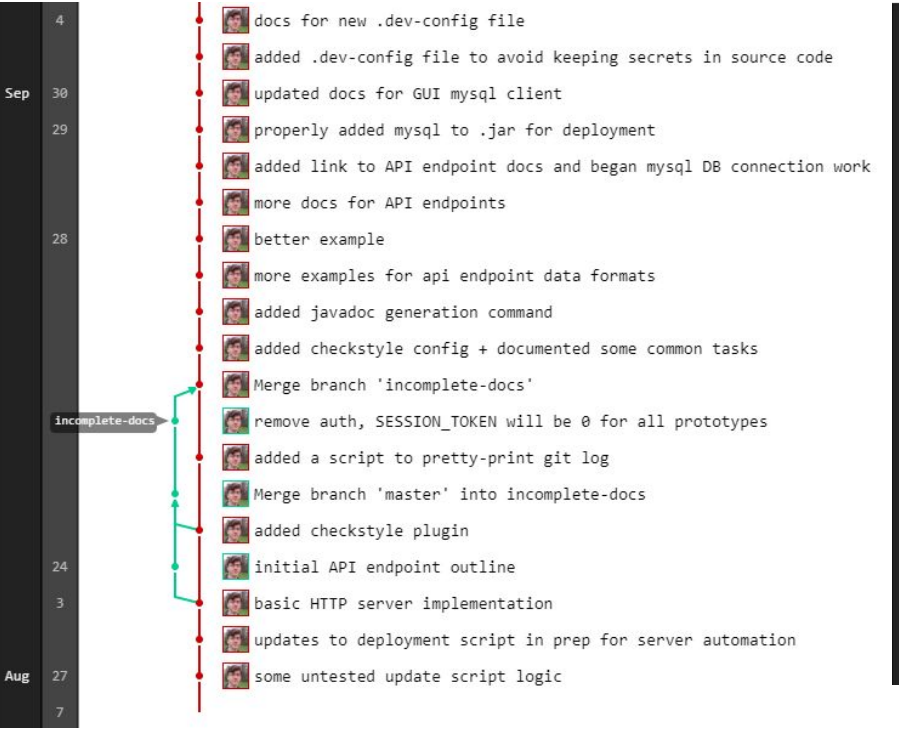
SeizSmart-Core Code Burndown

Core originated in SeizSmart-Server and does not have much history.

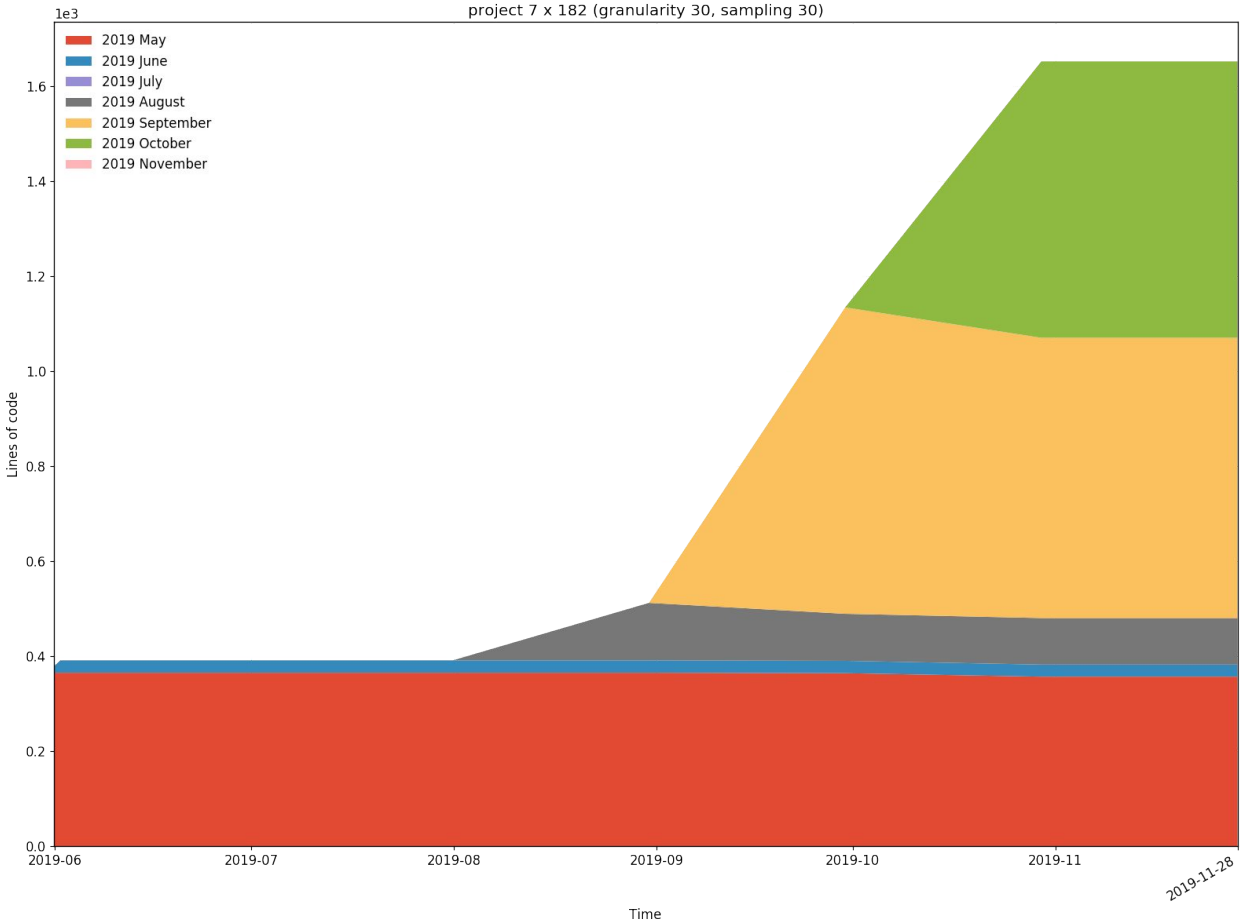
Every abstraction was useful and correct because it was already tested in the server codebase.



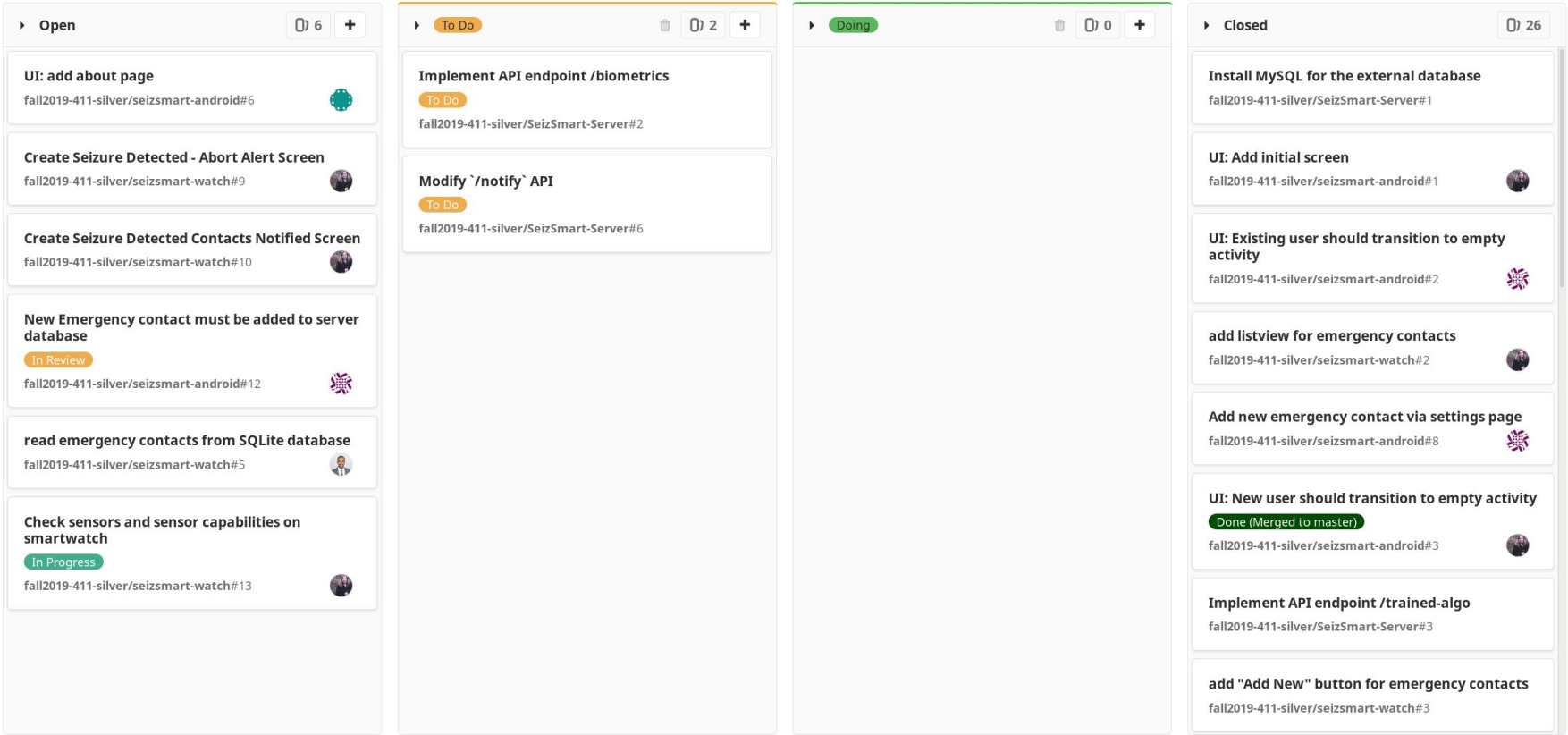
SeizSmart-Server Git Log



SeizSmart-Server Code Burndown



Issue board


Open
6
UI: add about page
fall2019-411-silver/seizsmart-android#6
Create Seizure Detected - Abort Alert Screen
fall2019-411-silver/seizsmart-watch#9
Create Seizure Detected Contacts Notified Screen
fall2019-411-silver/seizsmart-watch#10
New Emergency contact must be added to server database
In Review
fall2019-411-silver/seizsmart-android#12
read emergency contacts from SQLite database
fall2019-411-silver/seizsmart-watch#5
Check sensors and sensor capabilities on smartwatch
In Progress
fall2019-411-silver/seizsmart-watch#13
To Do
2
Implement API endpoint /biometrics
To Do
fall2019-411-silver/SeizSmart-Server#2
Modify `/notify` API
To Do
fall2019-411-silver/SeizSmart-Server#6
Doing
0
Closed
26
Install MySQL for the external database
fall2019-411-silver/SeizSmart-Server#1
UI: Add initial screen
fall2019-411-silver/seizsmart-android#1
UI: Existing user should transition to empty activity
fall2019-411-silver/seizsmart-android#2
add listview for emergency contacts
fall2019-411-silver/seizsmart-watch#2
Add new emergency contact via settings page
fall2019-411-silver/seizsmart-android#8
UI: New user should transition to empty activity
Done (Merged to master)
fall2019-411-silver/seizsmart-android#3
Implement API endpoint /trained-algo
fall2019-411-silver/SeizSmart-Server#3
add "Add New" button for emergency contacts
fall2019-411-silver/seizsmart-watch#3

Issue Board Summary

- Frontend user interface
- API additions to make frontend development easier
- Combine “In Progress” and “Doing” issue labels

Challenges we've been facing

- Tensorflow was a poor choice for our problem domain
- SMS Gateway security necessitated the creation of a Gmail account
- Unclear server API documentation needed more example code
- Android Studio fills disks to 100% making development VMs unusable

What's next?

Watch

- Begin collecting heart rate and gyroscope data to determine the onset of a seizure

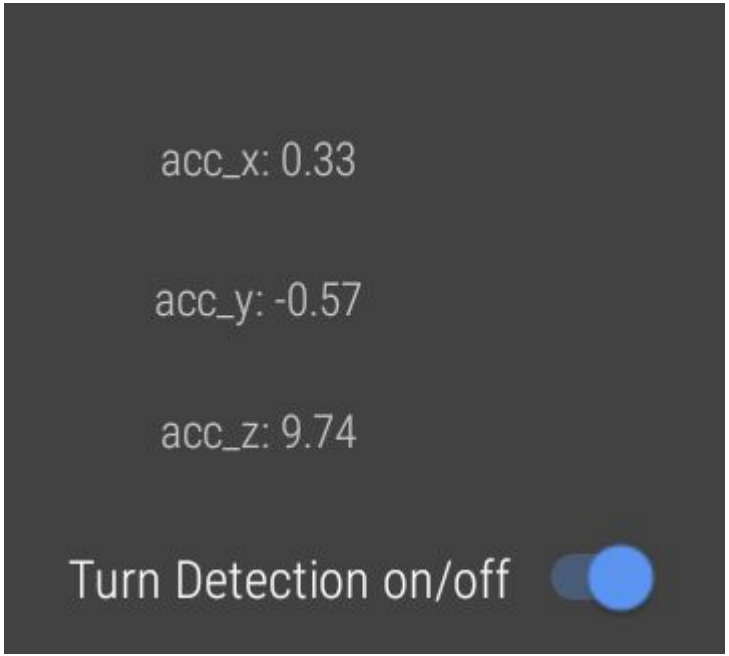
Phone

- Add ability to log seizures from smartphone
- Clear seizure alert using smartphone

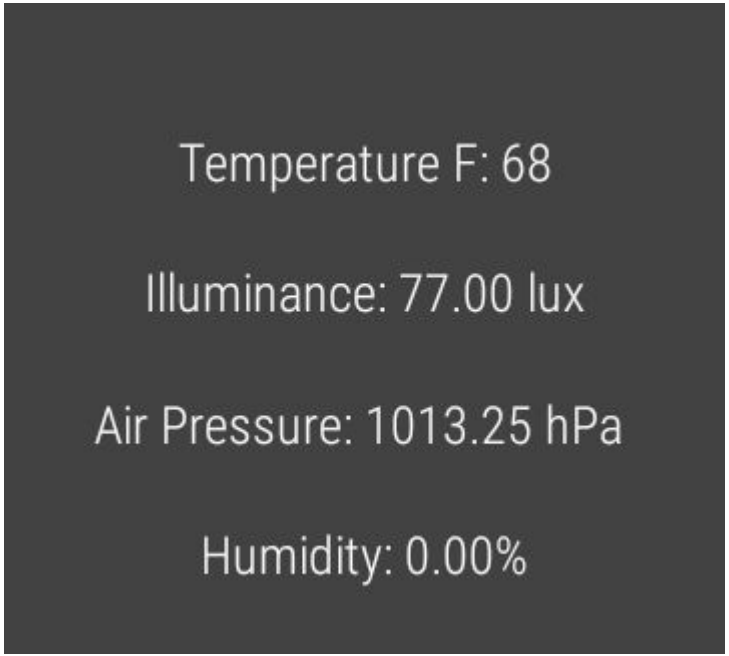
Server

- Persist Biometrics in MySQL
- Add heart rate and gyroscope data to biometrics being considered for training
- Create API endpoint to add new emergency contact to server from smartphone
- Receive new seizure tag from smartphone

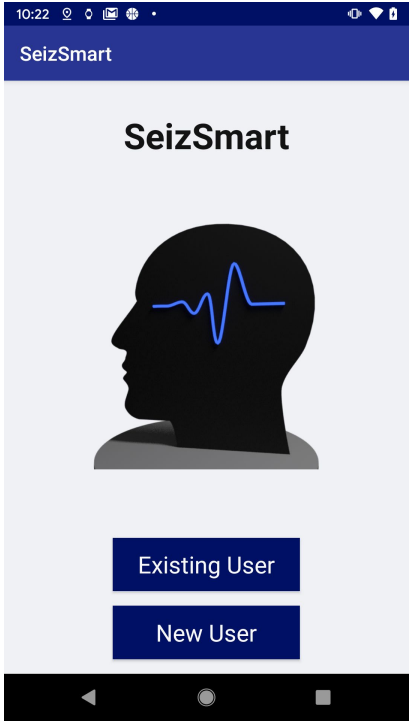
Screenshots: Watch

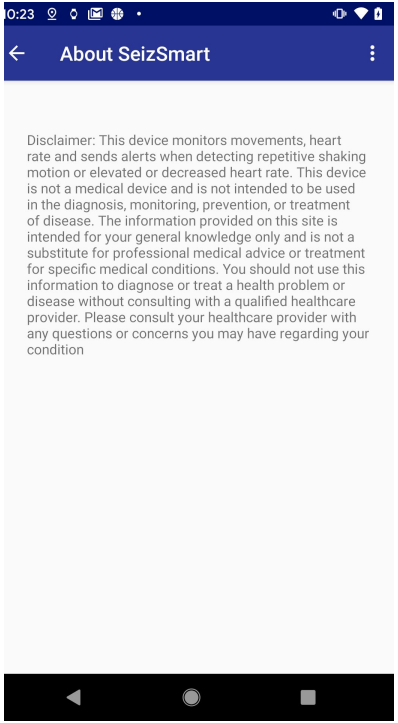


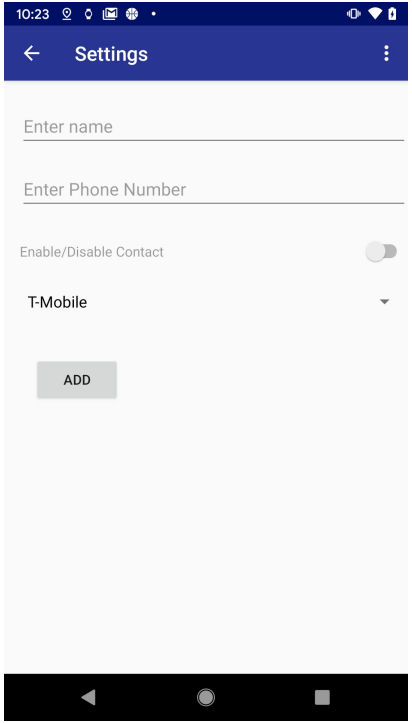
Screenshots: Watch



Screenshots: Phone







Screenshots: Phone